



Eric Newman <[REDACTED]>

Suggested changes to your draft of our Audubon grouse article

6 messages

[REDACTED] <[REDACTED]>
To: [REDACTED]
Cc: [REDACTED]

Wed, Jul 21, 2010 at 3:15 PM

Dear Alan:

Page 1, paragraph 2, line 4. Please add The in front of "Birds of America" and underline it. You use the name properly in all other instances except one other.

First paragraph beginning on page 2, line 5. Same correction as above

Page 7, line 3 Eliminate the word "obviously" as you suggested and its adjacent page note number. Eliminate the page note at the bottom.

Page 9, item 6, line 3 I think the word "copy was" should not be used here as there are so many Audubon copies that it is better to use "folios were" instead.

Page 9, item 6, line 5 I think you should add Princeton before Class of 1808 as you did above so as to avoid a misinterpretation by a reader in confusing it with Albany which follows.

Thank you for using so much of our material for your next year's publication and display. Please send us copies of the material when available and a picture of your Audubon display.

My renewed personal greetings to you after our many pleasant contacts long ago. Eric

6450 Cecil Ave., St. Louis MO 63105 Tel: [REDACTED]

Robert Peck <[REDACTED]>
To: [REDACTED]

Wed, Jul 21, 2010 at 3:50 PM

Thank you, Eric, for catching these things. You are the best copy editor I've ever known!
(not to mention a great scholar and content editor as well!)

We're continuing to refine the press release and should be ready to send it out next week. I'll let you know when we have picked a date for the release. - Bob

Robert M. Peck
Senior Fellow of the Academy

The Academy of Natural Sciences
1900 Benjamin Franklin Parkway
Philadelphia, PA 19103-1195
U.S.A.
Phone: (215) [REDACTED]

>>> <[REDACTED] 7/21/2010 3:15 PM >>>

[Quoted text hidden]

Alan M. Stahl <[REDACTED]>
To: [REDACTED]

Wed, Jul 21, 2010 at 3:59 PM

Eric

Good to hear from you.

I will take care of all of the corrections.

While the exhibit will have a 'soft' opening on August 30, the main event in conjunction with it will be on Sunday, Oct. 17. I will give a Gallery Talk at 3 o'clock, followed by a public meeting at 4, at which Mark Tomasko will speak on "The Art of Bank Note Engraving." If you are able to attend, I would be very grateful if you'd be willing to introduce the speaker -- and say a few words about paper money. Following this, there will be a reception at the exhibit (and probably a dinner thereafter).

We have arranged to have our copy of the Audubon book open to the appropriate plate (we're building a steel framework to hold it, as it is one of the horizontal plates), and I will give your discovery prominence in the press release for the exhibit. Thanks so much for allowing us to include this in the exhibit and catalogue.

Best wishes (and to your family).

Alan

Alan M. Stahl
Curator of Numismatics
Firestone Library, RBSC
One Washington Road
Princeton, NJ 08544

From: [REDACTED] [mailto:[REDACTED]]
Sent: Wednesday, July 21, 2010 3:16 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Suggested changes to your draft of our Audubon grouse article

[Quoted text hidden]

Alan M. Stahl <[REDACTED]> Tue, Oct 12, 2010 at 2:16 PM
To: [REDACTED]

Eric

The catalogues have come in; I hope you're as pleased with them as we are.

I hope that you'll be joining us for the lecture, reception, and dinner on Sunday. I can give you copies of the catalogue there or have them sent to you; let me know how many you'd like.

Best

Alan

From: [REDACTED] [mailto:[REDACTED]]
Sent: Wednesday, July 21, 2010 3:16 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Suggested changes to your draft of our Audubon grouse article

[Quoted text hidden]

[REDACTED] <[REDACTED]> Tue, Oct 12, 2010 at 3:43 PM
To: [REDACTED]

Dear Alan:

I wish I could attend your exhibition and program but I have to limit my travel and physical activity. That seems to happen to most people when their age reaches about a half year from the century mark, but as long as my marbles function I am lucky. Coins and Paper Money if cared for do not have that problem. Mark Tomasko will excite your audience.

Thank you for asking me..

I look forward to receiving at least three copies of each item you have prepared for the paper money occasion but if you enough of the one about the Audubon discovery I could use twenty . I may ask for more later as I have already had requests for more than my supply of off prints from my Journal of the American Republic article on Audubon as it received international publicity. My mailing address is [6450 Cecil Ave., St. Louis MO 63105](#)

As you know when you get into numismatics you never can guess what collateral research you might get into

My best to you.

Eric

[Quoted text hidden]

Alan M. Stahl <[REDACTED]>

Wed, Oct 13, 2010 at 1:04 PM

To: [REDACTED]

Eric

We'll miss you, but will hoist a glass in anticipation of your upcoming centennial at the reception.

We don't have offprints of the various parts of the catalogue. I'll send you 10 copies, and if you need more let me know and I'll see what I can do.

Best

Alan

From: [REDACTED] [mailto:[REDACTED]]

Sent: Tuesday, October 12, 2010 3:44 PM

To: [REDACTED]

Subject: Re: Suggested changes to your draft of our Audubon grouse article

[Quoted text hidden]



Eric Newman <[REDACTED]>

Money on Paper proofs

5 messages

Gretchen Oberfranc <[REDACTED]>

Tue, Aug 31, 2010 at 12:27 PM

To: [REDACTED]

Dear Mr. Newman and Mr. Peck,

Attached please find page proofs of your contribution to Alan Stahl's Money on Paper catalogue. I hope you will be pleased with the layout.

This project is on a very tight schedule. If possible, I would like to have your corrections by next Tuesday. A list by page and line number is fine.

With best regards,

Gretchen Oberfranc

**Audubon.pdf**

384K

To: [REDACTED]

Tue, Aug 31, 2010 at 1:40 PM

Dear Ms. Oberfranc:

I received your draft of what Princeton plans to publish about our Audubon matter. Bob Peck's telephone indicates he is not available until after September 2, 2010 and I will be glad to suggest a few appropriate changes to your text now.

Please telephone me at [REDACTED] at your earliest convenience so we can talk about them first. I am available at all times. Eric P. Newman.

[Quoted text hidden]

Robert Peck <[REDACTED]>

Thu, Sep 2, 2010 at 11:29 AM

To: [REDACTED] Gretchen Oberfranc <[REDACTED]>

Dear Gretchen,

Thank you for sending the page proofs for our essay in Alan Stahl's Money on Paper catalogue. I will review it carefully and get back to you with any corrections by next Tuesday, Sept. 7th.

Until then, with all best wishes, I remain -

Sincerely, Bob Peck

Robert M. Peck
Senior Fellow of the Academy

The Academy of Natural Sciences
[1900 Benjamin Franklin Parkway](#)
[Philadelphia, PA 19103-1195](#)
U.S.A.
Phone: (215) [REDACTED]

>>> "Gretchen Oberfranc" <[REDACTED]> 8/31/2010 12:27 PM >>>

[Quoted text hidden]

Thu, Sep 2, 2010 at 2:24 PM

To: [REDACTED]
Cc: [REDACTED]

Dear Ms. Oberfranc:

In accordance with your request and instructions I am suggesting some small changes to the Princeton draft of the Audubon matter for clarification purposes, as follows:

In the second paragraph beginning on page 28, line 3 , please insert:

" dated 1824 and available prior to " in place of " in 1824. the very year of "

In the second paragraph beginning on page 28 line 5 eliminate:

" prior to Fairman's meeting with Audubon "

If you have any further questions please feel free to contact me. Thank you for submitting your draft. Eric P.
Newman Tel: [REDACTED]

In a message dated 8/31/2010 12:27:50 P.M. Eastern Daylight Time, [REDACTED] writes:

Dear Mr. Newman and Mr. Peck,

Attached please find page proofs of your contribution to Alan Stahl's Money on Paper catalogue. I hope you will be pleased with the layout.

This project is on a very tight schedule. If possible, I would like to have your corrections by next Tuesday. A list by page and line number is fine.

With best regards,

Gretchen Oberfranc

Gretchen Oberfranc <[REDACTED]>

Thu, Sep 2, 2010 at 2:29 PM

To: [REDACTED]
Cc: [REDACTED]

Thank you very much, Mr. Newman. I will make these changes.

Yours,

Gretchen

From: [REDACTED] [mailto:[REDACTED]]
Sent: Thursday, September 02, 2010 2:25 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Re: Money on Paper proofs

[Quoted text hidden]

Discovered!
The First Engraving of an Audubon Bird

ROBERT MCCrackEN PECK AND ERIC P. NEWMAN

IT IS both ironic and fittingly appropriate that John James Audubon (1785–1851), who spent much of his life struggling to achieve financial security, wrote that his first engraved illustration of a bird was on a piece of American paper money. Until now, despite repeated efforts by Audubon scholars to substantiate it, the artist’s claim has lacked physical evidence (or a plausible explanation for its absence), raising doubts about whether such paper currency ever existed. Beginning in 1955, Audubon’s devoted biographer, Alice Ford, undertook a decade-long search for the engraving in both the United States and Great Britain. William H. Dillistin, president of the Federal Reserve Bank of New York and a noted numismatic scholar, made his own systematic search for the Audubon bank note in 1960. Working at the behest of the Princeton University Library, which was then organizing a major exhibition on the artist’s life and work, Dillistin was no more successful than Ford in tracking down the illusive currency. Audubon’s more recent biographers (Ron Tyler, William Souder, and Richard Rhodes) also have searched in vain for the bank note. Unable to find the evidence of Audubon’s claim, others have dismissed it as a red herring, invented by Audubon (a frequent embellisher of his own achievements) to burnish his reputation in the lean years before publishing his landmark book, *The Birds of America* (1827–1838). But new research on nineteenth-century American banking and the engraving companies that furnished paper money at the time confirms the reliability of the artist’s assertion and explains how forces beyond his control may have erased his fledgling entry into the visual world of commerce.

We know of Audubon’s first venture into the realm of commercial illustration from only two sources, both of which are entries in the artist’s private diaries.

Robert McCracken Peck, Princeton Class of 1974, is Curator of Art and Artifacts and Senior Fellow at the Academy of Natural Sciences in Philadelphia. Eric P. Newman is the author of *The Early Paper Money of America* and is a recognized author on many aspects of American numismatics. This article originally appeared in the

Journal of the Early Republic 30 (Fall 2010), 443–61. We are very grateful to the authors and to the Society for Historians of the Early American Republic for generously allowing us to abridge and reprint it in this context. Readers are advised to go to the original publication for the full documentation and illustrations for the article.

The first reference occurs on July 12, 1824, when Audubon, who was then seeking patronage for *The Birds of America* in Philadelphia, noted: "I drew for Mr. Fairman a small grouse to be put on a bank-note belonging to the State of New-Jersey." Unfortunately, the original diary in which this record appears was lost in a fire and is known only through Audubon's granddaughter's edited transcription. The second, equally cryptic mention of the illustration occurs in the journal he kept while in England. Fortunately, this volume still exists. In an entry dated September 9, 1826, the artist mentions showing an example of his grouse-decorated bank note to William Rathbone (1787–1868), a prominent Liverpool merchant and ship-owner whose friendship and support did much to advance the artist's reputation and acceptance in England: "I remained the night at Wm. Rathbone's," Audubon recorded, "[and] presented him with a copy of Fairman's Engraving of [my] Bank Note Plate."

The Fairman to whom Audubon refers was Gideon Fairman (1774–1827), a principal in the engraving firm of Fairman, Draper, Underwood & Co. of Philadelphia (1823–1830), which specialized in the preparation of paper currency for financial institutions. It was Fairman who advised Audubon to seek the superior engraving capabilities in England for the publication of *The Birds of America*. Their brief interaction and its effect on Audubon was described by the artist in his journal and has been well documented in the existing Audubon literature.

Remaining unexamined until now is the paper trail that traces the influence Audubon had on Fairman and his company. A sample sheet of images suitable for the decoration of bank notes, issued by Fairman, Draper, Underwood & Co. in 1824, the very year of the fateful Fairman-Audubon meeting, serves as the baseline to document the offerings of the Fairman firm prior to Fairman's meeting with Audubon. It contains a selection of some complexly engraved numerals and geometric roundels that were specifically designed for usefulness and decoration as well as for effectiveness in discouraging the counterfeiting of paper currency. It also presents classically draped figures representing commerce, liberty, and the personification of America, small portraits of George Washington, Benjamin Franklin, and Sir Walter Raleigh, and a number of other allegorical vignettes. Finally, it includes seven stylized images of eagles, but no grouse. This sheet would have been offered by Fairman to bank officials to help them select images to be used on bank notes printed by the Fairman firm. Such notes, issued by a wide range of financial institutions, both state-incorporated and privately operated, served as currency before the United States government established a centralized issuing program in 1863.

A large number of companies vied for the lucrative business of engraving and

printing paper money during the nineteenth century prior to the American Civil War. Fairman's firm (and its successors) was one of the most successful of these, well known in the banking world for the high quality of the currency it produced. In order to maintain and increase its market share in that competitive business, the company offered a continually expanding variety of original vignettes from which its customers could choose.

Whether the idea of using a grouse on a bank note was Fairman's or Audubon's, it is quite likely that the two men saw in each other an opportunity for mutual benefit. Fairman was constantly in search of new and distinctive designs, especially, it seems, those that reflected American themes. Audubon, needing income, welcomed a chance to demonstrate his capabilities as an ornithological illustrator. In America, where success was (and often still is) measured by financial achievement, what better way for a struggling artist to make his mark than on bank notes specifically created to be a tangible part of commerce?

It is not certain how quickly Fairman was able to make the image of Audubon's sketch available to his customers in the banking world. Another Fairman, Draper, Underwood & Co. sample sheet of unknown date, but possibly as early as 1825, shows many of the same vignettes offered on its 1824 graphic menu; a sample sheet printed in 1830 contains two examples of the vignette (fig. 13). Included among the new offerings is a small engraving of a running grouse (fig. 14). Could this be the illusive Audubon illustration? Several details strongly suggest that it is.

Interestingly, the bird shown is not a ruffed grouse (*Bonasa umbellus*), a chicken-sized game bird that, in Audubon's day, was commonly found in forested country throughout the eastern United States, Canada, and Pacific Northwest. Instead, the bird depicted is a now extinct eastern sub-species of the pinnated grouse or greater prairie chicken (*Tympanuchus cupido*) called the heath hen, which then ranged in small numbers from North Carolina to Maine. Audubon probably saw and may have procured a male specimen of the bird—with its distinctive courting feathers (called "pinnae"), which hung from the side of its neck, and the featherless air sacks on its throat—during one of his frequent collecting trips in the Mid-Atlantic states. He would have had such an opportunity during a trip up the Hudson River to Lake Erie and Niagara Falls, which he made early in 1824, or in Pennsylvania or New Jersey closer to the time of his meeting with Gideon Fairman that July. The bird is shown in a running posture that is almost identical to that used by Audubon to depict the female wild turkey in *The Birds of America*. This turkey is based on a painting that Audubon had begun in 1820 and may well have been shown to Gideon Fairman at the time the two men were introduced by Audubon's patron Edward Harris.

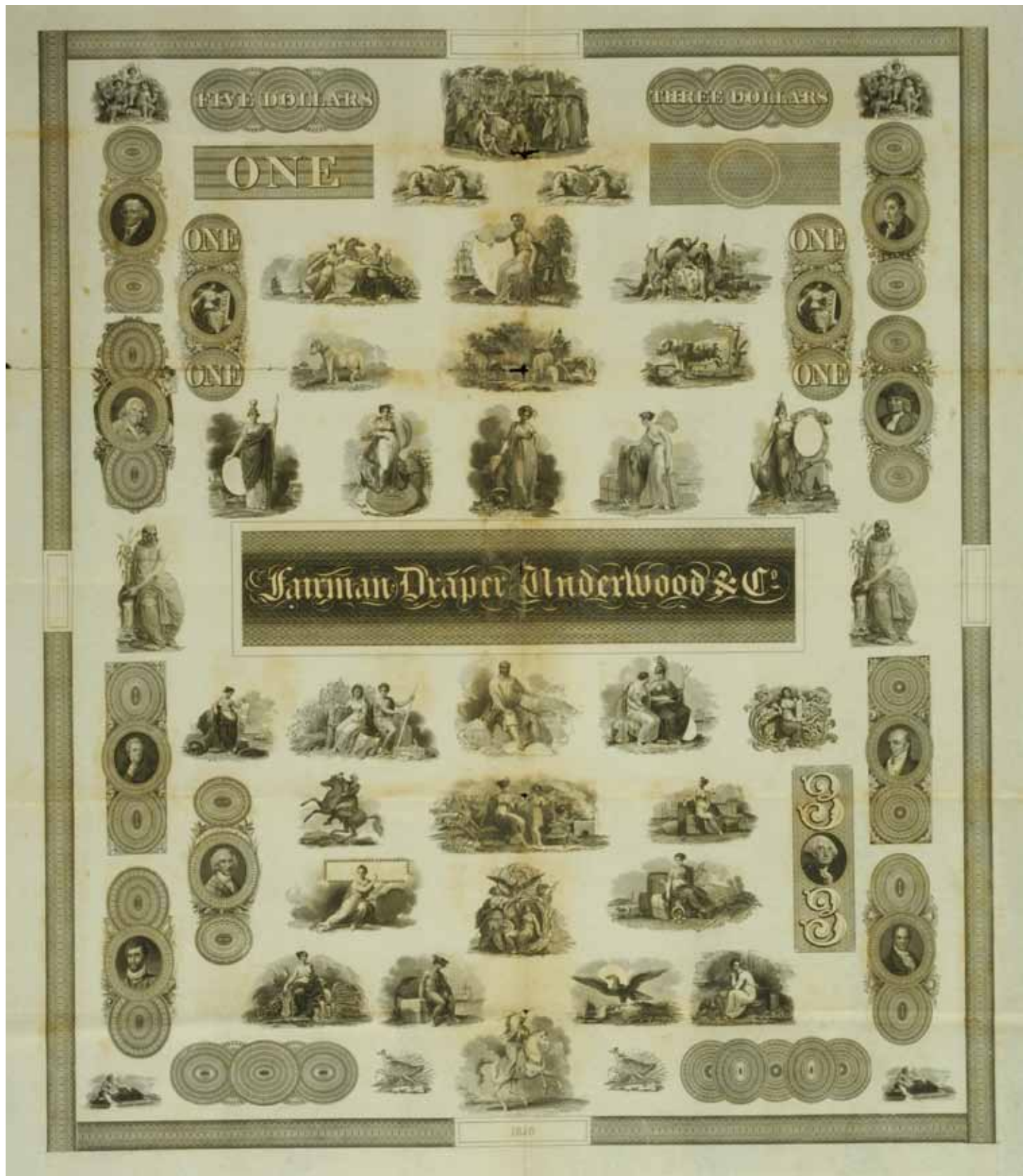


FIG. 13. Sample sheet issued by the firm of Fairman, Draper, Underwood & Co., showing Audubon's running grouse vignette at bottom left and right, 1830. Collection of Mark Tomasko (checklist no. 55).



FIG. 14. Detail of Audubon's running grouse vignette.

Could Fairman have requested that Audubon draw this relatively unusual species and depict it in an animated posture in order to help him catch the eye of bank note customers? The bird's running posture, somewhat unusual in an avian illustration, shows the artist's thorough knowledge of the species' behavior. Might the image's ornithological complexity and specificity have been intended as a way of foiling counterfeiters? Or perhaps Audubon selected the species in an effort to set himself apart from conventional illustrators, who would be inclined to show a more common bird in a static or stylized heraldic posture. There is no further reference to the bank note illustration in Audubon's writing and no known references to it in Fairman's surviving correspondence, so we may never know whose idea sparked the image or what discussions may have taken place between the two men about it.

As it was, any species of bird other than an eagle was unusual for use in American bank note design in the 1820s. Bills of a slightly later date did incorporate waterfowl and other game or domestic birds (fig. 15), but for the time in which it was created, Audubon's grouse stands out from the predictable array of patriotic symbols and generic vignettes as a refreshing innovation.

If Audubon hoped to enhance his reputation by being able to point to his handiwork on the paper currency of his adopted country, his aspirations were only partially fulfilled. His diary suggests that he had at least one such bank note on hand during his visit to Liverpool in 1826, but the question remains: Was such a note



FIG. 15. New Jersey, Egg Harbor Bank, \$2, dated *Oct. 1st 1861*, American Bank Note Company. The vignette shows two bobwhite quail. (checklist no. 57).

ever issued and, if so, why are there no known surviving examples of it today? There are two possible answers. The simplest is that the bill Audubon was so proud to show to his English patrons was not an accepted or an issued bank note, but a sample mock-up or a proof created by Fairman to show to potential customers. Using a slightly skittish (running) grouse in the design of a bank note may have seemed too risky or unconventional for the conservative bankers who selected the vignettes to embellish their bills. The bird may have been dropped from the final composition, its place going to a more familiar, reassuring, or patriotic subject. The example Audubon showed to William Rathbone could have been given to the artist by Fairman as a thank-you for the submission of his sketch, or Fairman might have given it to their mutual friend, Edward Harris, who in turn may have passed it on to Audubon for his interest and self-promotion. In either case, it is possible that only a very few examples of the New Jersey grouse bank note were printed.

A second, more complicated scenario is that Audubon's grouse-embellished bill was in fact circulated in reasonable quantity, but then intentionally withdrawn and destroyed after some fraudulent alterations of similar bills from another bank caused the legitimate ones to be rejected by the public. The explanation for such a scenario runs as follows: At almost the same time that Audubon created his

grouse image for Fairman, the independent State Bank (of New Jersey) at Trenton employed the firm of Fairman, Draper, Underwood & Co. to design and print many of its bills. That Trenton bank began to fail in July 1825, and its bank notes were deemed worthless by July 1826. Meanwhile, the State Bank (of New Jersey) at Camden, a totally separate and fiscally sound institution, also issued many bills designed and printed by Fairman, Draper, Underwood & Co. The Camden bills were the same size and somewhat similar in appearance to those issued by the Trenton institution. It appears that forgers, taking advantage of the financial crisis at the Trenton bank, acquired worthless Trenton bank notes and altered them by eradicating the word TRENTON and replacing it with the word CAMDEN in order to pass them fraudulently to an unsuspecting public. This nefarious practice was common in the days of state-chartered and private banking, when the public was not thoroughly familiar with bank notes from the many other banks. Such alterations, when skillfully done, were difficult to detect and far quicker and easier to make than wholly counterfeit bills. They were relatively easy to pass off in small transactions, for they appeared to be backed by the full credit of the solvent bank named on the face. Adequate examples of altered Trenton-to-Camden notes survive to confirm that such a fraud did occur. Although Audubon was almost certainly unaware of the financial crisis in Trenton, it may have had an impact on his earliest published image of a bird.

With a large number of altered bills in circulation, officers of the Camden bank may have tried to protect its good name and the unsuspecting public by withdrawing from circulation and destroying its own genuine small denomination bank notes in the course of doing business. Unfortunately for historians (and for Audubon), the eradication policy may have been so successful that no small denomination bills created by Fairman's firm for the Camden bank between 1824 and 1827 have survived. It is therefore impossible to know at this time whether the Camden bank notes ever included Audubon's grouse. We do know that Fairman's firm continued to offer the grouse to its other customers before it went out of business in 1830; a Fairman, Draper, Underwood & Co. sample sheet dated in that year includes that bird, along with other more traditional embellishments.

When an engraving company went out of business or changed ownership, it was common for the metal plates used to create the most popular images to be passed on or sold to another company. For this reason, some of the same vignettes can be found on bank notes issued by different institutions in different parts of the country over a period of many decades. The earliest surviving example of a bank note bearing the "Audubon" grouse (that is, the running pinnated grouse that appears on Fairman's sample sheets from the 1830s) was created (as a sample only)

for the Bank of Norwalk (Ohio), which operated from 1833 to 1849 (fig. 16). The \$3 note was engraved by Draper, Underwood, Bald and Spencer, a successor company to Fairman, Draper, Underwood & Co., from which it acquired many of the vignettes, illustrations, and embellishments used to produce bank notes. It is known only in proof form, not being signed or issued. It has plate letter C, indicating that a plate of four notes was engraved.

The same “Audubon” grouse appears on two undated developmental proofs for a \$5 note, also created by Draper, Underwood, Bald & Spencer, for the Bridgeport (Connecticut) Bank (fig. 17). On both Bridgeport designs, as on the sample note for the Bank of Norwalk, the grouse appears at the bottom center of the bill, separating areas reserved for official signatures. The developmental proof has a view of Bridgeport and several counters (denominational insignia) but no engraved text. The fully engraved proof has an additional bank note engraver’s name (N. and S.S. Jocelyn, N. York and N. Haven) and a plate letter A.

Because the Norwalk and Bridgeport bank notes incorporating “Audubon’s” grouse vignette survive only in proof and developmental form, it is unlikely that their designs were accepted for general issue. Once again, Audubon may have been denied numismatic immortality because of the nontraditional subject of his design. If the availability of the grouse vignette was ever advertised to potential customers, the identity of the artist who created the running grouse would not have been mentioned.

For reasons we may never know, Audubon’s grouse does not appear to have survived as a decorative offering past the 1840s. A careful search of paper currency printed by Fairman, Draper, Underwood & Co., its successor firms, and even its competitors, has failed to locate any other notes bearing the distinctive image, although a print from the American Bank Note Co. archives of unknown date (after 1858) contains the grouse image and two other small vignettes.¹ Like the original drawing on which they were based, the bank note plates of Audubon’s grouse may have survived for a while and then been lost or intentionally destroyed, thus ending the artist’s brief entry into the footnotes of numismatic history.

Fortunately for the once struggling Audubon, by the time his grouse disappeared from the vignette offerings for America’s regional currency, he had earned enough grouse-free money to claim his place as America’s most revered, beloved, and financially successful naturalist. By 1840 Audubon had made such strides as an artist that he might have considered the simple sketch of 1824 inadequate and even embarrassing. He had many greater accomplishments to his credit by then,

1. We are grateful to Mark Tomasko for calling this to our attention.



FIG. 16. Unfinished design for \$3 note for the Bank of Norwalk, Ohio, incorporating Audubon's running grouse vignette. Photograph courtesy of the Eric P. Newman Numismatic Education Society.



FIG. 17. Preliminary layout for \$5 note, printed by Draper, Underwood, Bald & Spencer for the Bridgeport Bank, Bridgeport, Connecticut. Photograph courtesy of the Eric P. Newman Numismatic Education Society. (checklist no. 56).

including 435 hand-colored, life-size “double elephant folio” illustrations of the birds of his adopted country. Among these was a dramatic depiction of the same species he had once illustrated for Gideon Fairman. The engraved plate of the greater prairie chicken (what Audubon called the “Pinnated Grouse”), issued as plate 186 in *The Birds of America* (fig. 18), demonstrates the work of a fully mature artist at the height of his powers. Audubon’s knowledge as an ornithologist, confidence as an artist, and deservedly acclaimed ability to integrate several birds into a single composition are all well reflected in this animated design, something he did not attempt in his sketchy bank note drawing of 1824. The picture created for his great book on birds documents both the species’ habitat and its characteristic mating behavior as no previous artist had done. It reveals in one scene what Audubon knew to be the most important aspects of the bird’s life cycle, and yet, for all of the scientific information conveyed, the artist has not compromised the visual impact of the picture.

Despite the differences in style, intent, and execution between Audubon’s running grouse bank note design and his more sophisticated treatment of the same species in *The Birds of America*, the artist’s diary entries, reinforced by the surviving proof sheets from Fairman’s engraving company, help to confirm that both illustrations were created by the same hand. Whether or not Audubon’s running grouse was ever used on widely issued American currency, its existence on Fairman’s design sheets and on at least the one sample bank note that Audubon possessed may have helped the artist at a critical moment in his life. A U.S. bank note printed with an illustration he had created may have enabled Audubon to demonstrate his professional and artistic credibility to an influential merchant like William Rathbone at just the right time in his remarkable career. Through Rathbone’s extensive introductions, Audubon was able to meet most of the leading lights of Liverpool and make the essential leap from provincial curiosity to lionized darling of the British establishment. The social and artistic acceptance that Rathbone helped him to achieve soon turned into the financial support with which he could take the next critical step in his life’s ambition to create a book on America’s native birds. Following Gideon Fairman’s advice, and with help from his new friends in Liverpool, Audubon sought out and successfully established working relationships with two of the best engravers in England. They, in turn, ensured the successful creation of what was—and remains—arguably the most beautiful natural history book ever published.

Like so many of the plates from *The Birds of America*, Audubon’s “Pinnated Grouse” is today widely admired by bird lovers and print collectors around the world. It sells for prices that would have astounded Audubon and his contempo-



FIG. 18. "Pinnated Grouse." Hand-colored engraving by Robert Havell Jr. after John James Audubon. Plate CLXXXVI in John James Audubon, *The Birds of America* (Edinburgh and London, 1827–1838). The Princeton folios were presented in 1927 by Alexander van Rensselaer (Princeton Class of 1871), a charter trustee of the University. They had formerly belonged to Stephen van Rensselaer (Princeton Class of 1808) of Albany, New York, one of the original subscribers to the work. The latter's name appears as no. 32 in Audubon's list of subscribers.

raries. Sadly, the species that inspired the plate has been extirpated from most of its original range and struggles to survive even in areas of protected habitat. The heath hen, the bird that inspired the bank note drawing Audubon made for Gideon Fairman, has now completely vanished. In less than two hundred years, this once rare but now extinguished subspecies has moved from a visual guarantee of fiscal stability (through Fairman's printing) to a symbol of human avarice and

destruction. Now that Audubon's grouse vignette has been rediscovered and credited to the artist who made it, we can add it to the visual contributions of America's best-known painter of wild birds. In a way Audubon never intended, this simple illustration of a running bird serves as a metaphor for his early struggle for artistic and financial success. It also represents a small but powerful symbol of the wild America with which Audubon's name and legacy will be forever linked.



Eric Newman <[REDACTED]>

Congratulations and thanks

2 messages

[REDACTED] <[REDACTED]>
To: [REDACTED]

Thu, Oct 21, 2010 at 5:21 PM

Dear Alan:

I received direct reports raving about the October 17, 2010 gala and your Princeton paper money exhibition. I wish I had been able to attend. However when I received MONEY ON PAPER my true appreciation developed as to what fine quality and energetic input went into the project. The pamphlet was attractive (in the pink) and educational in every respect. It shows what the culture of numismatics can do to make history, economics, art, science, and human experience more fascinating and stimulating,

I am sure the visitors will spread the word to others who might have been unaware of the exhibition's quality. I am so glad that Mark Tomasko was so helpful to you.

The Chinese should not come because the circulation of the Chinese mulberry bark note was encouraged by having your head chopped off for not accepting it as legal tender.

Thank you fore sending me copies of the magazine. I could use a few more at your convenience for my family and not so opulent numismatic research friends.

I am so happy that the wonderful relationship you and I had in the distant past has so pleasantly revived. My very best to you.

Eric

Alan M. Stahl <[REDACTED]>
To: [REDACTED]

Tue, Oct 26, 2010 at 12:05 PM

Eric

Thanks for the kind words.

I've sent off an additional 10 copies today.

Best

Alan

Alan M. Stahl
Curator of Numismatics
Firestone Library, RBSC
One Washington Road
Princeton, NJ 08544
[REDACTED]

From: [REDACTED] [mailto:[REDACTED]]
Sent: Thursday, October 21, 2010 5:21 PM
To: [REDACTED]
Subject: Congratulations and thanks

[Quoted text hidden]



Eric Newman <[REDACTED]>

Happy Birthday

2 messages

Alan M. Stahl <[REDACTED]>
To: [REDACTED]

Wed, May 25, 2011 at 9:15 AM

And best wishes

Alan Stahl

[REDACTED] <[REDACTED]>
To: [REDACTED]

Thu, May 26, 2011 at 3:22 PM

And best wishes to you for the British Numismatic honor. Eric Century P. Newman

In a message dated 5/25/2011 8:15:43 A.M. Central Daylight Time, [REDACTED] writes:

And best wishes

Alan Stahl



Eric Newman <[REDACTED]>

NC offprint

1 message

Alan M. Stahl <[REDACTED]>
To: "Alan M. Stahl" <[REDACTED]>

Tue, Mar 13, 2012 at 4:17 PM

Here's an offprint of an article in the recent *Numismatic Chronicle*, with my best wishes.

Alan

Alan M. Stahl
Curator of Numismatics
Firestone Library, RBSC
One Washington Road
Princeton, NJ 08544
[REDACTED]

**Learning from the Zecca.doc.pdf**
209K

The Numismatic Chronicle 171 Offprint

Learning from the Zecca

by

ALAN STAHL

LONDON
THE ROYAL NUMISMATIC SOCIETY
2011

Learning from the Zecca.

The Medieval Mint of Venice as a Model for Pre-Modern Minting

ALAN STAHL¹

THE COINAGE of medieval Venice is in many respects typical of that of the European Middle Ages. The coins are thin, of low relief, and bear Christian symbolism. Technologically, they differ from ancient coins in being struck from iron (rather than bronze) dies, which were carved using punches for individual letter forms and for parts of the images. Perhaps a more significant difference from ancient coins, however, stems from the circumstance that they are the issues of a mint for which a significant amount of written evidence survives documenting aspects of their history, economic role and details of minting that are scarce for their ancient forerunners. While in my book *Zecca: The Mint of Venice in the Middle Ages*, as well as a number of monographs, I focussed on the role of the Venetian mint and coinage in the historical context of its day, this evening I would like to discuss aspects of Venetian minting that may serve as a model for understanding the minting of other pre-modern mints, especially those of the Mediterranean world which were the precursors of Venice.

The two ancient mints which, it seems to me, appear to have had minting regimes most analogous to that of medieval Venice were Hellenistic Athens and Republican Rome, while the Byzantine mint can be seen as a potential means of transmission of ancient minting practices to medieval Venice. Ancient Athens was, like Venice, a city-state governed by an oligarchy, which owed much of its economic success to commerce, while it built a political empire in its own hinterland and with overseas colonies. While its coinage of the classical period is notoriously undifferentiated and anonymous, for the Hellenistic period it displays a complex series of personal identifications on the so-called 'New Style' tetradrachms, which are interpreted as having served as some form of mint control.² In a similar way, Rome in the republican period grew from being a city-state to a territorial power under the direction of a power-sharing ruling class; its coinage in this era is characterised by the identification on it of a series of supervising magistrates known as the *tres viri monetales*.³

Byzantium grew out of the Roman Empire, so was very different in its political basis from the city-states, and the control marks on its coinage are much less explicit than the monograms or magistrates' names on Athenian or Roman Republican coinage. It was from the Byzantine mint that Venice learned about the organization of coining and on which it modelled its most important medieval coin, the silver

¹ This paper was given at the meeting of the Royal Numismatic Society on January 18, 2011, on the occasion of my receipt of the Society's Medal. I have kept this in the form of a general talk rather than a research paper and have limited references to a few specific citations not included in my book *Zecca. The Mint of Venice in the Middle Ages* (Baltimore and London, 2000).

² M. Thompson, *The New Style Silver Coinage of Athens* (New York, ANS NS 10, 1961), pp. 584–99.

³ M.H. Crawford, *Roman Republican Coinage* (London and New York, 1974), pp. 598–603.

grosso. I will admit to having been disappointed in my quest for any direct evidence of a link between the Byzantine and Venetian mints in terms of personnel or even the use of terminology, but as with Athens, Rome, and other ancient mints, I shall leave direct comparisons of Byzantine minting with that of Venice for other discussions, and concentrate here on the aspects of Venetian minting that can be seen as responses to monetary needs by a state with similar structures to some of antiquity, effected using similar technological resources.

One aspect in which the coinage of medieval Venice parallels its ancient precursors is in the insufficiency and even inaccuracy of the account of the development of its coinage as presented in narrative sources as distinguished from archival documents. One particularly egregious example of misinformation comes in the reports of one of the earliest of independent issues of the Venetian mint, the denaro, or penny, in the name of the doge Orio Malipiero (1172–92). He was actually the third doge whose name appeared on Venetian coins (following three centuries of coinage in the name of Germanic emperors); his name is associated with the beginning of the Venetian coinage in manuscript chronicles as well as the first two early modern histories of Venice, where because of the similarity of his personal name Orio with the word for gold (*oro*, *aurum*), the coin is called an *auriolis* and tied to the appearance of hypothetical payments in weighed gold in penalty clauses of documents of the period.⁴

The next innovation in Venetian coinage, the introduction of the large silver grosso, is correctly associated in the narrative sources with the reign of doge Enrico Dandolo (1192–1205), but in the earliest extant chronicle composed after its inception, that of Martin da Canal of the second half of the thirteenth century, this introduction is put in the context of the preparations for the Fourth Crusade of 1202. In a later chronicle, that of the future doge, Andrea Dandolo (1342–54), written half a century after that of da Canal, this innovation is dated to the second year of Enrico's reign, in 1193, a year which fits better to the numismatic evidence. In his account, Andrea Dandolo gives the name 'matapan' as an alternative to grosso for the coin, one taken up widely in modern numismatic treatises, but which I have found in no other medieval source.

The chronicles and histories are accurate in ascribing the beginning of the first true gold coin of Venice, the ducat, to the reign of Giovanni Dandolo (1280–9). The only medieval narrative to give an actual year of inception places it in 1250 – three decades before the beginning of his reign.⁵ Other sources attribute it to an imperial grant or a papal one, neither of which is true, and one goes so far as to say that the Venetian ducat was modelled on the papal ducat, whereas the reverse is true. While archival documents show that the ducat was first authorized in October of 1284, the *Lives of the Doges* of the fifteenth-century diarist Marin Sanudo, after recounting the incorrect information about imperial and papal privileges, preserves the plausible

⁴ R. Cessi and F. Bennato (eds), *Pietro Giustinian, Venetiarum historia vulgo P. I. Iustiniani filio adiudicata, Monumenti Storici*, NS 18 (Venice, 1964), p. 34; Biblioteca Nazionale Marciana, MS Lat. X, 136 (3026) [XIV century], f. 30v; BNM, MS Ital. VII, 794 (8503) ['Zorzi Dolfin', XV century], f. 185; Marcantonio Sabellico, *Le Istorie Veneziane* [1486], Venice, 1718, p. 171; L. Muratori (ed.) *Marin Sanudo, Vita dei Dogi* [1494], *Rerum Italicarum Scriptores* 22 (Milan, 1733), c. 521.

⁵ A. Nanetti (ed.), *Antonio Morosini, Il Codice Morosini: Il mondo visto da Venezia (1094-1433), Quaderni della Rivista di Bizantinistica* 10, 4 vols. (Spoleto: Centro Italiano di Studi sull'Alto medioevo, 2010), 1, p. 41.

recollection of the author's having seen in the recently demolished medieval mint building a plaque commemorating the actual first striking of ducats in March of 1285, five months after the authorization.⁶

The next important innovation in Venetian coinage took place in the reign of another Dandolo doge, Francesco (1328–39), the introduction of a new denomination, the soldino, defined as a shilling of twelve pennies and replacing the penny as the basis of the monetary system, with twenty soldini defining the lira or pound of account. The chronicles are accurate in ascribing the introduction of the denomination to Francesco's reign, as well as that of a short-lived mezzanino or half-grosso, but place the innovation in the latter part of his reign, well after it is attested in archival documents. Moreover, they omit the most important aspect of the innovation from a monetary point of view – its creation as a mechanism for a significant debasement of the silver-based money of account and a source of great profit to the state.

The most important changes in the coinage came in the reign of the last of the Dandolo doges, Andrea. Though four members of the large and powerful clan were doge when important changes happened in the coinage, I have been unable to identify any special interest in coinage or monetary affairs associated with the family, even in the chronicle written by this same Andrea. This reign saw the enormous rise in the minting of the gold ducat replacing and eventually eliminating the grosso as the coinage of trade, the progressive debasement of the soldino, and the introduction of the tornesello as a very base coinage for use in the Greek colonies that brought in an enormous profit to the mint. The only trace of these innovations in the narrative sources is the note in the chronicle of Antonio Morosini, written a half century later, that the soldini of this reign were of pure silver so were not subject to clipping (presumable since they were weighed in transactions) and could still be seen in circulation.⁷ Nor do the chronicles connect the coinage innovations with the major event of the reign, the enormous upheaval brought by the Black Death of 1348, which killed at least half the population of Venice and led to social and economic changes which, I have argued, were the immediate causes of some of the monetary innovations.

The monetary mutations of this reign were, in fact, the last major changes to the coinage of medieval Venice, other than the periodic debasement of the silver coinage, a process totally ignored in the chronicles but the subject of extensive and detailed debates in the records of the various governing bodies of the state. The final important narrative source of medieval Venice, and perhaps the most telling caution for the use of such accounts from the ancient world, comes in the so-called death bed oration of doge Tomaso Mocenigo (1414–23), set in 1423 but extant only in later chronicle compilations. This speech, attributed to a dying ruler making predictions for his country should a certain individual succeed him, gives detailed mint statistics as well as figures on the number of commercial voyages to various ports and the amount of goods and money carried on them. Through an analysis of the coin identifications in this text, I have argued that it is a later fabrication by opponents of the individual (Francesco Foscari) decried in the oration, who did (of course) succeed Mocenigo. Economic historians, though reluctant to give up one of the few sources of usable

⁶ Sanudo, *Vita dei Dogi*, c. 574.

⁷ Morosini, *Il Codice Morosini*, 1, pp. 63–4.

statistics for the period, have come to accept my cautions about the reliability of this text.⁸

If the narrative accounts for the Venetian mint and coinage are little better than those for its ancient and Byzantine predecessors, archival documents permit a detailed reconstruction of the workings of the mint and its role in the life and wealth of medieval Venice. The Venetian mint, known as the *Zecca*, a term of Arabic origin, was located in the governmental heart of Venice, across the Piazzetta San Marco from the Doge's Palace, rather than in the Rialto market across the Grand Canal, which was the heart of commercial life and contained the market place for silver and gold. The geographical position of the mint was representative of its importance to the life of the Venetian state, which depended on the trade that was supported by the coinage and the revenues that the mint brought in. An enormous amount of oversight and auditing of accounts can be seen in the regulations issued periodically (and apparently not always successfully) by various supervisory councils and committees. The vital importance of the mint can be seen in the fact that in the summer of the Black Death, thirty-six members of the Council of Forty returned to the pestilence-riven island city to debate on and set coinage standards, the only significant legislative action taken in that period.

The deliberations of the bodies that set coin standards and the prices to be paid for bullion reveal an ongoing tension between the mercantile desire to produce a highly regarded, consistent, coinage and the fiscal interest in financing the expenses of a state with few mechanisms for direct taxation. In some periods, in order to encourage trade, coins were returned to people bringing bullion to the mint on a weight by weight basis, with the state subsidizing the entire cost of production. In other cases, the mint's profit was the source of a significant part of state revenues. After the debasement effected by the introduction of the soldino in the 1330s, the annual mint revenue from that denomination alone can be calculated at £165,000, which represents 7.5% of the value of the outstanding state bonds, and would have been more than enough to cover the interest payments on all of the debt of the Republic.

There are many ways in which the political and economic aspects of Venetian minting may present interesting parallels to that of the ancient world. Unfortunately the ancient sources have little to say on such questions as the role of mercantile and banking institutions in their economies and the degree to which minting regimes included the coining of private stocks of bullion on the one hand or the revenue and expenditures of the state on the other. In the time that remains, I would like to concentrate on two aspects of Venetian minting which tie in directly to phenomena and issues involved in discussions of ancient coinages: the system of magistrates' identifications and other marks in the control of the coinage issues, and numismatic indices of coin production.

As I noted earlier, the coinage of Venice presents a parallel to those of Hellenistic Athens and of Republican Rome in the presence of mint masters' marks on the silver issues. In the case of Venice, it is of note that these marks appear only on the silver coins. The enabling legislation for the gold ducat did, in fact, provide for the placing of a mark on the coins to identify the master responsible for them, but such marks have not been identified on any surviving specimens.

⁸ E.g., P. Spufford, *Power and Profit. The Merchant in Medieval Europe* (London, 2002), pp. 385–6.

The reason for the disparity between gold and silver coinages in this respect appears to derive in part from the technological differences in the recognition of alloys of the two metals and in the degree of supervision that went into their manufacture. According to medieval documents, merchants skilled in using the touchstone were capable of recognizing the fineness of gold coins within one grain (about one-quarter carat) and theoretically within a half of a grain. Thus, a virtually non-destructive means was available to catch any manipulation within the mint of the alloy of a coin it produced down to a disparity of one percent or even half a percent from decreed standards. Moreover, the Venetian mint required a complicated series of tests akin to the medieval English Trial of the Pyx to verify the fineness of every batch of gold as it was turned into ducats. As most of the gold it coined was the property of merchants or of the money changers who represented them, ducats produced by the mint would have been likely to have been checked privately before having been accepted.

The fineness of a silver coin, on the other hand, could not be so easily determined. The only practicable method for assessing the fineness of a silver-based coin alloy was by an assay using the cupellation process. For this, it was necessary to amass a significant amount of the coinage in question, about one quarter kilogram, and using a complicated and rather unreliable process, melt it in such a way as to separate the base elements from the silver. At the end of this process, the remaining quantity of silver could be weighed, and the ratio of this weight to that of the original batch of coins revealed the fineness of the original coins, which were now of course no longer extant. This process seems to have occurred throughout the circulation area of a coinage whenever it was suspected that a mint or perhaps a minting official was producing an issue of less than expected fineness. Because of the exigencies of the assay process, it was then necessary to be able to trace any issue of silver coinage back to the official in charge of its issue.

The first indications of such a marking on Venetian coins appear on the grosso in the mid-thirteenth century, a few of decades after its introduction. These comprise simple secret marks inserted on the reverse near the figure of Christ. There are almost exactly three times as many such marks as the number of years in each doge's reign. The earliest extant manual for masters of the silver mint of Venice, known as a capitulary for its division into chapters, dates from 1278, shortly before the introduction of the ducat. It describes a regime under which the silver mint was under the joint direction of three mint masters, all serving one-year terms. It seems entirely coincidental that this was the number of the individuals magistrates identified on the Athenian New Style tetradrachms, as well as the *tres viri monetales*. There is no indication that such a tripartite administration survived a millennium of Roman imperial and Byzantine minting, and the coining regimes of Hellenistic Athens and Republican Rome were not understood by numismatists until well into the modern period.

The masters of the Venetian silver mint were almost all members of the hereditary nobility. Each year three were elected to this office, with the expectation of receiving an annual salary, income from fines levied on errant mint employees, occasional incentives for the production of low-denomination coins, and eventually a payment based on the amount of coinage produced. The position was full-time, with the master expected to be at the mint every working day to acquire silver, supervise its coining, and distribute the finished pieces. Venice had no formal *cursus honorum*

analogous to that of the Roman Republic, but many masters are known to have had long careers of government service, holding other offices at home or in the colonies after their tenure at the mint; none are known to have ended up in the highest offices of the republic such as the *Signoria* or the dogeship.

The three masters of the silver mint of thirteenth-century Venice rotated in a sequence termed a *quindena*, a Venetian derivation of the Latin *quindecena*, implying fifteen days or two weeks. By the period in which it is well documented, however, the *quindena* seems to have expanded to a two-month period, still maintaining its original designation. The individual whose mark appeared on the coin was known as the master of the *quindena*; he was personally responsible for any shortfall in fineness, weight or appearance of the coins bearing his mark. Perhaps more importantly, he was held liable for turning over to the treasury whatever profit the mint was expected to derive from the coinage and was personally responsible for making up any shortfall.

The master of the *quindena* was accompanied during most of his day at the mint by one of the others elected for the year, termed the associate, or *socius*, whose main responsibility was to look out for any irregularities and report them directly to the supervisory committees of the government councils across the *piazzetta*. If a dispute arose between the master of the *quindena* and the associate, the third minter was summoned from home to settle it. At the end of his *quindena*, the master passed to the associate the keys to the various vaults and an account of all bullion belonging to the state or to individuals, and went home to spend the next two months preparing the detailed accounts of his tenure demanded by government regulations, while the associate became the master and the third man became associate. Thus, in any given year, three men were in charge of minting, and were represented by marks on the coinage. In the period when the *quindena* was two months, each would mint for two distinct periods in a year separated by the activity of the other two.

As the silver coinage became more complex, the identification of the minters was extended to the subsidiary soldino coinage, and secret marks were replaced with the initial of the first name of the mint master, and then those of both of his names. Especially after the Black Death of the mid-fourteenth century decimated the ranks of available qualified nobles, the position became more of a career than a one-year magistracy, and some masters remained at the mint (and their identification appeared on the coins) for over a decade.

This period also experienced a weakening of the system of controls within the mint and of the careful auditing of accounts in the ducal palace. By 1385, one mint master, Filippo Barbarigo, could be prosecuted for seventeen years of corruption as a mint master, with embezzlements from the silver mint that totalled more than £6,000, equivalent to his salary for that period. The system of mint marks on silver coins of medieval Venice seems to have been more of a potential check against malfeasance by masters than an actual one. Of twenty-two documented cases of legal action taken against a mint master, most were fines for late filing of accounts or shortfalls in the remittance of profits. There is only one case for mint masters prosecuted for producing coins below standards, and the two individuals in question were caught by internal controls within the mint rather than by the assay of coins with their marks.

No records survive from the medieval Venetian mint that give precise figures on the quantities of coinage produced; in that respect the documentation is less complete than for the contemporary mints of Florence, Genoa, France, the Low Countries, or England. However, legislative records regarding the staffing of the mint and the distribution of coins, as well as pleas for special treatment for overworked mint employees, allow some inferences to be drawn of the levels of production and variation in quantities.

First of all, it should be noted that only a small amount of the mint activity was occasioned by the processing of bullion acquired as state revenues; coins taken as duties, taxes and purchases of government bonds were disbursed without reminting, except in periods in which clipping or counterfeiting occasioned a specific measure by the state to restore a sound circulating medium. For the most part, new coins were struck from bullion and foreign specie brought to the mint by individuals. The amount of mint activity, however, was not left to chance. Sophisticated deliberations in the government bodies speak to the desire to obtain maximum mint profit when bullion was plentiful and attract metal to the mint in periods of shortage.

On the most basic of levels, production varied on a seasonal basis; reliance on daylight within the workshops built around the interior courtyard of the mint building meant that the facilities could get twice as much use in summer as in winter, coincident with the increased supply and demand for coinage in the better season for transportation. In periods of great demand, even the liturgical calendar which provided over a hundred days of observance could be overridden and the mint be kept open on Sundays. Periods of high activity led to the expansion of the mint and, with the glut of gold in the mid-fourteenth century, to the addition of a third story with six new hearths.

Most of the hammering out of ingots into sheets and the striking of flans was carried out by relatively unskilled labourers, who were hired each morning in consideration of the needs of the day and were paid according to the amount each processed. Even the numbers of masters and of those most skilled of mint employees, the die engravers, were subject to adjustment to meet the productive needs of the mint. At its maximum capacity, in the late thirteenth and early fourteenth century, the mint of Venice employed as many as 250 men, possibly constituting the greatest productive facility in Europe under one roof at that time. By the early decades of the fifteenth century, when a bullion famine is well documented throughout Europe, this activity must have decreased significantly, though the complaint in the Senate in 1417 that for many months the activity of the mint had been reduced to almost nothing must have had at least in part a rhetorical element.

Scattered documents can be pulled together to provide general trends for the issue of specific denominations, and occasionally actual statistics that can be compared with numismatic evidence of the type derived in the study of ancient coinages. The case of the *tornesello*, the first Venetian denomination I studied, is particularly clear in this respect. The coin was introduced in 1353, specifically for the Venetian colonies in the Aegean, but due to its debased silver content the workings of Gresham's Law led to its virtual universal adoption throughout Greece in preference to finer competitors, Venetian and local. Its production rose steadily through the rest of the century; it is

documented to have reached more than three million coins a year in the 1380s and as many as eight million by 1391. Overproduction led to a loss in its value, and demand dropped soon after the beginning of the fourteenth century, leading to a sharp decline in its production. One doge elected in 1382 at the height of this production died from plague after three months in office. A preliminary die study I carried out on forty-six specimens in his name produced a projection of about 29 obverse dies and 48 reverse dies. The appearance of a new hoard with fifty-one specimens of the issue occasioned a reworking of the die study, and resulted in a revised projection of 43 original obverse dies and 58 original reverse dies. This experience may be taken to some extent as a result of the poor striking of these coins, but in general it argues for the replication of die studies, a task few numismatists are eager to undertake. The die projections, compared with documented production figures, imply a minting of as many as 70,000 coins from each obverse die and 50,000 from each reverse, in line with statistics for other thin, low-relief medieval coins. Such numbers can be used for comparison with ancient coinages only with the greatest of caution and explicit caveats.

In closing, I would like to move from the tornesello, my first encounter with Venetian coinage, to work which is still in progress and which I have just presented in preliminary form at the symposium in honour of Peter Spufford last September.⁹ A series of account books I recently encountered in the Venetian archives record the transaction of a money changer, Guglielmo Condulmer, who appears to have supplied about one-seventh of the silver processed by the Venetian mint around the year 1400. In general, the relative quantities of bullion he brought to the mint for refining correspond to the documented fluctuations in supply brought about by the European bullion famine of the period. An unanticipated aspect of these accounts, and one with implications for numismatics as a source for monetary evidence for pre-modern economies, is the data for the form in which Condulmer received the refined silver back from the mint and distributed it to merchants for commercial use. A significant percentage of the bullion was not turned into coin, but made into ingots, generally weighing about five kilograms each. Such ingots are known from the Venetian documents to have been stamped with the dies of the corresponding coins, including the mint mark of the supervising master, but none are known to exist today. There had been no way of estimating the importance of such ingots to the work of the mint or the monetary basis of trade before the discovery of these accounts, and their substantial role in the output of the mint suggests a strong caution for the assumption of a direct correlation of mint activity and coin production with monetary circulation.

In the end, the main lesson that the study of the *Zecca* of Venice offers is not so much in the specifics of its operation and role in the economy of its time, and the degree to which these may parallel that of other mints, as in the unity of numismatics as a discipline and the importance of all of us learning from each other.

⁹ A.M. Stahl, 'Ingots and the Venetian Mint in the Later Middle Ages: The Accounts of Guglielmo Condulmer,' in *Studies in Honor of Peter Spufford*, ed. by Nick Mayhew (forthcoming, 2012).



Eric Newman <[REDACTED]>

Condolences

1 message

Alan Stahl <[REDACTED]>
To: [REDACTED]

Sat, Sep 5, 2015 at 3:16 PM

Eric

I was sorry to read of your loss in the NY Times this morning; please accept my condolences.

Alan Stahl